

Mobile Data Network

Product Summary

The Mobile Data Network is a data communications solution that enables users to run business applications from laptops mounted in equipped vehicles—doing business in a real-time, mobile environment.

The Mobile Data Network provides wireless data communications on a licensed frequency spectrum over private State communications infrastructure. The Mobile Data Network is overlaid onto the State Microwave system and State Wide Area Network—able to provide data communications coverage throughout the state.

The Mobile Data Network connects, transports, and manages data traffic between mobile units in vehicles, long-range radios at communication sites, the State Wide Area Network, and the Mobile Data Network Controller.

Users can roam the Mobile Data Network coverage area while continuously operating business applications.

Product Features

Mobile Data Network Features	
Feature	Description
Mobile data technology	<ul style="list-style-type: none"> IPMobileNet, Inc. system. Open architecture incorporating end-to-end native Internet Protocol (IP). Low bit error rate (BER) allows IPMobileNet to have low forward error correction (FEC) overhead compared to other technologies. State-of-the-art digital signal processing technology, allowing upgrades to higher data rates through advanced modulation techniques.
Data rate	<ul style="list-style-type: none"> 33Kbps, less overhead. IPMobileNet product roadmap to higher data speeds—first 64kbps, then 128kbps.
Licensed frequency spectrum	<ul style="list-style-type: none"> 700MHz Utilizes the 700MHz set aside by the FCC for Public Safety wireless operations.
Bandwidth	<ul style="list-style-type: none"> 25KHz and 50KHz, in the same radio.
Signal reliability	<ul style="list-style-type: none"> Very high message success rate, even while transferring large blocks of data. Second antenna provides for multi-path correction to improve signal reliability, reducing packet resends. A multi-layered approach to signal reliability through path diversity, data scrambling, data interleaving, forward error correction (FEC), and collision tolerant radio modems.
Communication site infrastructure	<ul style="list-style-type: none"> Operational communication sites throughout the state.
Mobile data base stations	<ul style="list-style-type: none"> Long-range radios and antennas. Patented IPMobileNet system with three independent high performance, low-noise FM receivers.

Coverage	<ul style="list-style-type: none"> ▪ Expansive coverage—on-line coverage map updated as the network expands. ▪ Capability for statewide coverage is based on State Microwave Communication Sites and the State Wide Area Network. ▪ Users Group members contribute to decisions of network expansion.
Mobile data network controller (IPNC)	<ul style="list-style-type: none"> ▪ Routes and schedules data transmissions throughout the network. ▪ Bridges wired and wireless portions of the network. ▪ Routes messages to and from mobile users, handles bandwidth allocation, multi-access protocols, hand-offs, load leveling, synchronization and time slot allocation. ▪ Redundant controllers configured for failover at the State Office Building and the Richfield Data Center.
Coverage area interoperability	<ul style="list-style-type: none"> ▪ End-to-end native Internet Protocol (IP) architecture that creates an interoperable data network. ▪ Uninterrupted connectivity as users roam between base station coverage areas.
Mobile unit configuration documentation	<ul style="list-style-type: none"> ▪ Instructions for configuring mobile units for use on the Mobile Data Network.
Mobile unit registration	<ul style="list-style-type: none"> ▪ On-line form to register mobile units for authorized access to the Mobile Data Network.
Mobile units – system component	<ul style="list-style-type: none"> ▪ Mobile units must be purchased by the user agency, to be mounted in vehicles and connected to the Ethernet port for connectivity to the Mobile Data Network. ▪ <i>IP</i>MobileNet multi-patented, dual receiver, Intelligent Diversity Reception System™ unit. ▪ Compact and rugged. Low power consumption. High performance integrated GPS receiver. ▪ See System Components section below for ordering information.

Product Benefits

Mobile Data Network Benefits
A single shared Mobile Data Network—eliminating duplicated infrastructure development efforts and costs, and providing for mobile interoperability among users.
Improved communications across jurisdictions with interoperability. Users can travel outside their usual areas of responsibility and continue to operate data applications.
Private State communications infrastructure for reliable coverage statewide.
Capability for statewide coverage using existing private State communication sites, Microwave system, and Wide Area Network infrastructure—including rural areas not serviced by commercial entities.
Private data-only network. No priority contention with voice during emergency situations or other incidents.
Secured access via radio and network protocols.
Professionally managed network by State DTS Network and Wireless experts.
Mobile units with integrated GPS receivers reduce the cost of acquiring GPS data from vehicles.
Vendor technology roadmap that includes a data speed migration path to 64Kbps, then 128Kbps.

Product roadmap in coordination with Utah Wireless Integrated Network (UWIN) consortium comprised of Local, State, Federal, and Homeland Defense Regional representation. UWIN web site: <http://www.uwin.utah.gov/>

Investment in Mobile Data Network base station infrastructure in large part funded by Homeland Security grants.

State DTS-maintained state contract with Mobile Data vendor. DTS assistance when ordering mobile unit equipment.

Services Not Included with this Product

Services Not Included	
Service	Explanation
802.11 Wireless Network	<ul style="list-style-type: none"> The 802.11 Wireless Network is a distinct network and product. Access web page: http://its.utah.gov/productsservices/productservices.htm Mobile Data Network users may use the 802.11 Wireless Network as a separate network connection. Mobile Data Network users may use the 802.11 Wireless Network via a network persistence solution that automatically switches to the most effective wireless network.
Network persistence solutions	<ul style="list-style-type: none"> Network persistence solutions—to allow mobile workers to move between different wireless networks (e.g., Mobile Data Network and 802.11 Wireless Network) without losing connection or security, is not part of the Mobile Data Network. Network persistence solutions may be set up to operate in coordination with the Mobile Data Network. Three vendors that provide network persistence solutions are on state contract. DTS can work with customers to implement a network persistence solution.
GPS	<ul style="list-style-type: none"> Mobile unit GPS tracking is considered a customer business application. GPS applications can run on the Mobile Data Network.

Related DTS Products

Related DTS Products	
Product	Description
Mobile unit installation and repair	<ul style="list-style-type: none"> Customers may use a provider of choice to install and repair mobile unit equipment. State DTS Wireless Services Vehicle Equipment experts are available to install and maintain mobile units per State Vehicle Equipment rates. Web page: http://its.utah.gov/productsservices/radioshop/index.html

DTS Responsibilities

DTS Responsibilities
Design and manage network.
Manage and maintain base station equipment.
Manage and maintain the Mobile Data Network Controller with redundant, failover capabilities.
Maintain and enhance the State Wide Area Network in support of the Mobile Data Network.
Manage and enhance State Communications Sites and Microwave system in support of the Mobile Data Network. Perform frequency searches and interference and propagation studies as necessary.
Work with the Mobile Data vendor to implement product roadmap upgrades and updates.
Assist user agencies with mobile unit purchase orders.
Register mobile units in the Mobile Data Network Controller.
Maintain and enhance mobile unit configuration instructions.
Work with users in configuring mobile units for use on the Mobile Data Network.
Work with UWIN to meet users' Mobile Data Network needs.

Customer Responsibilities

Customer Responsibilities
Purchase mobile unit equipment.
Installation of mobile units in vehicles.
Configuration of mobile units per Vendor/DTS instructions for operation on the Mobile Data Network.
Register mobile units with Vendor/DTS for use on the Mobile Data Network.
Installation, user setup and maintenance of business applications on mobile laptops.
Selection of business applications designed for a mobile environment.
Implementation of business application level security as applicable.
Fund and manage the maintenance and repair of mobile units as applicable.

Product Service Levels

Product Service Levels
DTS leverages the State's collective buying power to obtain the best possible level of service from contracted service providers related to Wide Area Network service in support of data communications.

DTS Customer Support

DTS Customer Support
Technical assistance incidents are managed based on appropriate industry best practices.
Incident resolution is accomplished by multi-level technical support staff.
Incidents can be submitted 24 x 7 via phone, Internet and Live Chat.
Internet submissions are monitored during normal business hours, Monday-Friday 7:00 AM to 5:30 PM.
Incident priority is based on the importance of system(s) affected, the severity of system degradation, and the number of affected users.

Initial response targets are two business hours for low and medium priority incidents, one clock hour for high priority incidents and thirty clock minutes for urgent priority incidents.

Incident resolution targets are twelve business hours for low priority incidents, ten business hours for medium priority incidents, six clock hours for high priority incidents and three clock hours for urgent priority incidents.

Response performance, resolution performance and customer satisfaction are measured and reported regularly

IPMobileNet Technical Assistance Program in support of DTS product support.

System Components

The following information is provided to assist customers with purchasing mobile unit equipment. Customers are encouraged to work directly with DTS to ensure all appropriate equipment is obtained—to facilitate operational access to the Mobile Data Network.

System Components
<u>Mobile radio units (Installation not included)</u>
<ul style="list-style-type: none"> M32700G25 with GPS wireless modem, 30 watt, less antenna – 33Kbps. <i>IPMobileNet</i> state contract AR1770: \$1800.00.
<u>Mobile unit antenna and related equipment (installation not included)</u>
<ul style="list-style-type: none"> Two - NM03E700B Radial/Larsen 3.2db 5/8 wavelength antenna and roof/trunk mount Hutton state contract PD1587: \$14.43 each. Two - NMOKUDN cable, NMO mounting with type N crimp, 700MHz low loss. Hutton state contract PD1587: \$10.30 each. One - GPSNMO99 Radial/Larsen GPS antenna white (or black) for NMO mount, SMA connector Hutton state contract PD1587. One – Antenex Engine Noise Filter. Tessco Technologies, Inc. part number NS3035.
<u>Alternate GPS antenna (installation not included)</u>
<ul style="list-style-type: none"> Magnetic mount option to the above threaded mount GPS antenna: Mobile Mark, Inc. MAG1575 Magnetic Mount. Tessco Technologies, Inc. part number 481787.
<u>Mobile laptop and mount equipment</u>
<ul style="list-style-type: none"> Laptop with DC power supply. Vehicle power adaptor. Laptop mount. Printer with printer cable. Console for radio, siren, etc.—as applicable. Electronic shotgun mount—as applicable. Miscellaneous mounting supplies. Equipment installation.
<u>Pre-release purchase of data speed upgrades - <i>IPMobileNet</i> mobile units</u>
<ul style="list-style-type: none"> 64Kbps upgrade: Add \$250 to the <i>IPMobileNet</i> 33Kbps mobile price. 128Kbps upgrade: Add \$500 to the <i>IPMobileNet</i> 33Kbps mobile price.

Notes

1. *IPMobileNet* standalone (purchased after release) data speed upgrade prices are the same—i.e., \$250 for 33Kbps to 64Kbps upgrade, \$500 for 33Kbps to 128Kbps upgrade, and \$250 for 64Kbps to 128Kbps upgrade.
2. See product web site for *IPMobileNet*, Hutton, and State Purchasing contact information:
<http://its.utah.gov/productsservices/wirelessnetwork/wirelessdata/mobiledata.htm>

Product Rate

Mobile Data Network Rate		
	Description	Rate (\$)
Mobile Data Network Access	Monthly rate per mobile unit.	\$15.00 per user per month
Packaged Mobile Equipment and Mobile Data Network Access	<ul style="list-style-type: none"> ▪ Rate applies for 5 years, at which time equipment payment is complete. After such time continued service will switch to Monthly Access only. ▪ Equipment includes Mobile radio units, not laptop equipment. 	\$50.00 per user per month

Ordering the Product

To request development of a expanded geographic coverage area, contact the DTS Product Manager and/or the Department of Public Safety IT Director or participate in the Mobile Data Network Users Group.

The register a mobile unit for use on the Mobile Data Network, users must complete and submit an on-line form. DTS will work closely with the mobile unit(s) are operating to the satisfaction of the customer.

On-line form: <http://its.utah.gov/productsservices/wirelessnetwork/wirelessdata/mobiledata.htm>

Product Agreement

DTS and the Customer agree that this Product Description together with an approved Product Order Form constitute a binding agreement between both parties for the Product and related services required by the Customer. This Agreement remains in effect according to the terms specified in the Product Order Form, or until canceled by either party upon a thirty-day written notice.

Product and/or Service Rates listed are in accordance with the approved DTS Rate Schedules or Interim Rate Schedule. Therefore, the product description and order form replaces all other documentation, i.e., Contracts, Special Billing Agreements (SBA), Service Level Agreements (SLA), Memorandums of Understanding (MOU), etc.

To the extent that the terms set forth above conflict with an existing Contract, Special Billing Agreement (SBA), Service Level Agreements (SLA), Memorandums of Understanding (MOU), or other agreement between DTS and the customer, the parties acknowledge that the foregoing shall supercede the earlier agreement.